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WESTERN FARMER AND GARDENER.
INDIANAPOLIS, MONDAY, MARCH 2, 1846.

☞ Our friends will find a fine stock of Landreth's Garden Seeds at A. G. Willard's Store, under the Palmer House, Indianapolis. We think these seeds may be relied upon as good.

☞ At the same place, our Farmers may examine the Subsoil Plow, and buy it, too, if they are willing to try the effect of deep plowing.

EASTERN APPLES AT THE WEST.

We extract from a business letter this question:

"Do you think, as a general thing, that eastern apples maintain their reputation in the west? or are western varieties better for the orchard?"

Every region is apt to think that it excels all others in the quality of its fruit. We were tolerably well acquainted with the best New England apples, and it is our impression that neither in size, height of color, nor matured flavor do they excel western apples; or the same apples grown at the west.

If an apple be planted in an inappropriate soil, it will, in either region, fail of giving the perfect flavor of its fruit.

Downing says:—

"The apples raised on the very fertile bottoms of the western States are very large and beautiful, but as yet, owing to the excessive luxuriance of growth, are far inferior in flavor to those of the same quality, raised on the strong, gravelly or sandy loams of this section of the country." p. 69.

It is this amiable fondness for the localities of the Hudson river that has brought down upon this distinguished horticultural writer so much censure; and so many, as we think, not exactly just charges of unfairness. We do not think Mr. D. in any case wilfully depreciated, or knowingly overpraised any fruit-growing section. But he is certainly misinformed; and by such misinformation has given rank to eastern New York at the expense of other fruit-growing regions.

There is no doubt that apples in the west, on rich and rank bottom lands, are sometimes of a finer size and cheek than flavor; but so are they in New York, in Pennsylvania, and all the world over. It is not a peculiarity of western bottom lands; but of all lands that give a rank luxuriance, and a coarse flabby tissue to the wood. There are several acres of orchards in Ohio, Indiana, Kentucky and Michigan, *not* on bottom-lands!

In the east and in the west, alike, "a strong sandy loam on a gravelly subsoil" is *the* soil for orchards. It is only now and then that a variety prefers a strong clay. The question fairly put between eastern and western apples, is not between

an orchard on the *best* New York soil and an orchard on our *worst* soil; but between our best apples and their best apples. Downing fails to put the question thus; and if so put, I do not think that we have anything to fear in the trial.

This is a case which shows the point of the homely proverb: "the proof of a pudding is in the eating." Has Mr. Downing ever had a fair trial in this way? We have. It is the general testimony of those who remove from the east to our fine apple regions, that they find better fruit than they leave.

But let accomplished judges decide: Mr. Ernst has abundantly proved the fruts of both regions; what says Mr. Ernst? Dr. Hildreth and Professor Kirtland have been familiar with apples on both sides of the Alleghany — what say they?

It is very likely that there are *some* varieties which, in the west, fall below their eastern reputation. We have no doubt that apples, like men, have *idiosyncracies*; (we hope our readers own a dictionary) and some never do so well in all respects as in the place of their origination. This is but a presumption; but a presumption with many supports. We can imagine that a tree which flourished in Canada, becoming rank and coarse, in Indiana, would be prodigal of gross watery fruits. But there are ten western seedlings of great merit which would grow parsimonious of fruit if exiled from our summers to the Atlantic slope. The green Newtown Pippin, glorious in New York, and the States below it, fails in Massachusetts. We suppose the same event will happen to many varieties of western apples, in the north-east.

In general, then, we should say:

1. The western States, say, Ohio, Indiana, Kentucky, and portions of Illinois are, the whole range of the orchard being considered, better fruit growing States than New York or New England.

2. The eastern apples in the west are, as a general fact, fully equal to the same varieties of eastern growth. The change of locality produces and earlier period of ripening. Eastern autumn apples are often decidedly summer apples with us; and many of their winter apples are, in the west, ripe, eaten and gone long before the snowy months.

3. Such western apples as require the long summers and warm suns of the west, will be apt to give little proof of their excellence in the north-eastern States.

We suppose, without meaning to institute an exact comparison, that our climate bears to New York and New England, some such relation as the climate of those States does to that of Great Britain.

PATENT SCHOOL-MASTERS.

There is no end to inventions. We have an account of one in a school district, not far from Indianapolis, which leaves patent plows, patent fanning mills, patent threshing machines, quite in the back-ground. Here is an extract of a veritable letter, actually received, from a friend who is a man of strict veracity; and we now defy the world to beat Indiana, at the business of teaching!

"And also, on the subject of common schools, please inform your readers, that the school in District No. ——, Township No. ——, Range No. ——, in —— county, is taught by a man who can neither spell, read, or write; and yet he says, "I profess to be qualified"—"I have taught school before"—"I got my education at first-rate schools." Can any other district in the State compete with us? or do we stand unrivalled? Send in your reports.

"I remain, 'solitary and alone,'

A DISSENTER."

This simplifies the business of teaching amazingly. No more expensive books, no stupid lessons, no cash paid out for quills and paper; but a good oldfashioned way of teaching without the bother and fuss of reading, writing and spelling. Besides, school-masters can be had in this way in any quantities and cheap enough. Now there's a fellow just out from Greencastle or Crawfordsville; *he* has the impudence to ask three or four dollars a quarter, just because he knows how to read, write, and cypher! when two dollars is all the patent school-master asks! Yes, he may know all about books, and not know much either. Why, anybody can teach reading, if he knows how to read himself; that's nothing atall: but if he *can't* read, and gets the boys to do it, that's a right down genius for teaching. When a fellow has stewed over his arithmetic till he's got it by heart, sums, rules, and all, it would be a pity indeed if he could not teach it. But just put him at teaching something that he knows nothing about, and see then, how he'll get along! If the boys never *do* learn to read; why, then, mischievous books will never do them any harm; if they do not learn to write, why, of course, they will never be indicted for forgery.

We love originality; but we aver that in all the schools of learning from the days of Plato in the groves of Academus down to Mr. ——— in the groves of Hamilton county, Indiana, there has never been a more decided instance of originality than is found in our *patent school-master*.

Will our readers give us some account of the condition of schools, &c., in their districts?

The thermometer at Indianapolis, the morning of February 26, stood at 13° below zero—the coldest morning of the season.

REMARKS ON SEED-SAVING.

Mr. Editor: — Some years ago I read an account of melons having been grown from seed that were over forty years old. The old gentleman who tried the experiment, says, as near as I can recollect, that, better than forty years before he inherited the effects of his grandfather, and among them there was an old secretary. The furniture being antiquated, it was stored away in "the garret," the usual receptacle for worn-out garments, broken chairs, various herbs, and spider-webs, where it remained for forty years, unmolested; when, one day he went into the loft, and looking among the "clutter" he discovered and opened a drawer of the "old secretary," and there saw a paper which, on opening, he ascertained to be melon seeds. He planted the seeds, and they grew as readily and with all the luxuriance that those did of the preceding year's growth, and the old gentleman adds, he was certain the melon seeds must have been deposited in the drawer by his ancestor, before his death, and how long prior to that, it was impossible to form any idea. Thinking of this, the other day, it suggested *five* questions, which I would like much to have answered in the columns of the Farmer and Gardener; the two last ones particularly.

1. Is there any way of telling, or is it already known, how long fruit, tree, and other seeds will keep, and retain their germinating principle?

2. Is it essential that apple, pear, or quince seeds should be put into earth or sand as soon as taken from the fruit?

3. Would the pits of the peach, plum, and nectarine grow after being exposed in the atmosphere two years?

4. Would not the seed of the apple, the pear, &c., put in bottles, and closely corked and sealed, so as to be air-tight, answer a better purpose than mixing them in soil, to keep over winter?

5. If bottles would answer the purpose, how long would the seeds thus keep and be certain to grow when planted?

Perhaps some of your correspondents would give the desired information, which would be valuable, especially to those who would like to take seeds across the water or a long journey by land.

M.

The familiar signature of M. is welcome; always indicating to our eye, some curious fact, observations or experiment. We wish others would imitate his example. Gaining a livelihood by a laborious occupation, he does not make that a reason for not reading or writing. In reply to his questions we will impart our own opinions; and shall be glad if others will let us see "what they know about it."

1. There is no reason to doubt the relation of the old gentleman and his forty-year-old seeds. The seeds of cucumber, melon, &c., are better, at any rate, when four or five years old than when fresh; and we have well authenticated instances of seeds retaining their vitality much longer than this. There is *no* fixed period during which seeds will keep. There is no reason to suppose that they would lose their vitality in any assignable number of years *if the proper conditions were observed.* De Candolle says that M. Gerardin raised kidney beans, obtained from Tournefort's herbarium, which were at least a hundred years old; but beans left to the chances of the atmosphere are not good the second year, and hardly worth planting in the third. Professor Lindley raised raspberry plants from seed not less than sixteen or seventeen hundred years old. Multitudes of other instances might be given. In reply to the first question, it may, then, be said, that the length of time through which which seeds will keep depends upon the method of preserving them.

2. We do not suppose it to be essential to enclose apple, pear, and quince seeds in earth for the purpose of preserving their vitality, during a single winter. But, if exposed to the air, the rind becomes so hard and rigid as to make germination very difficult from mere mechanical reasons. The moisture of the soil keeps the covering in a tender state, and it is easily ruptured by the expansion of the seed.

3. The shell of peach, plum, and other stone-fruit seeds would form, if left to dry and harden, a yet more hopeless prison. If kept for two years, the most stone-fruit pits, it is to be presumed, would not germinate. Some, however, would have vigor enough to grow even then. We have forgotten who it was, but believe it to have been some person in this place, recently mentioned the fact, that a peach or apricot stone was for several years kept as a child's play-thing; but, upon being planted, grew, and is now a healthy tree. Such cases are, however, rare.

4. The intercourse between Great Britain and her distant colonies, and the various expeditions fitted out from her shores for purposes of botanical research and for the acquisition of new plants from distant regions, have made the subject of seed-saving and seed-voyaging a matter of much experiment.

In general, the conditions of preservation are three; a low temperature, dryness, and exclusion of air. But it often happens, that all these cannot be had; and then a choice must be made between them. Heat and moisture will either germinate the seeds or corrupt them then. In long voyages, and in warm regions, *moisture contained in the seed*, if in a close bottle, is sufficient to destroy the seed. Glass bottles have therefore been rejected. Seeds for long voyages, or for long preservation, are thoroughly ripened and thoroughly dried; but dried without raising the *temperature* of the air, as this would impair their vitality. They are then wrapped in coarse paper, and put, loosely, in a coarse canvass bag, and hung up in a cool and

airy place. In this way seeds will be as nearly secure from heat and moisture — their two worst enemies — as may be. The fifth question is answered by the general tenor of these remarks.

The above remarks upon the longevity of seeds must not be regarded as invariably true. It is probable that some seeds have but a short period of vitality under any circumstances of preservation. Seeds containing much oil, are peculiarly liable to spoil. Lindley suggests that the oil becomes rancid.

The preservation of seeds from one season to another, for home use, is not difficult, and may be described in three sentences: ripen them well, dry them thoroughly, and keep them aired and cool.

HISTORY OF FINE-WOOLED SHEEP.

Those who have made sheep-husbandry a study, and those who have been diligent readers of agricultural journals, will not, perhaps, need to be told the origin of the variously named sheep which compose the flocks of our country. But the great majority of our readers are, as we were, until after we read Morrell's American Shepherd; and for them we write.

Merino. — These are a Spanish sheep, and are the progenitors of almost all the best varieties of fine-wooled sheep in the world. The term is written, in Spain, *Mareno;* which signifies, from beyond the sea; indicating a foreign origin. There is little doubt that they were brought from Italy, early in the first century; and that they were of the famous Terentine breed. Great attention was paid to their flocks by the Spaniards. Their flocks are of two kinds; those which, like ours, constantly remain at home, and are estimated to number 8,000,000; and those which annually migrate for pasturage, numbering about 10,000,000. It is said that forty thousand shepherds, and thirty thousand dogs are employed in tending these immense migratory flocks.

Paular Merino. — The various flocks which composed the Merinos took their names from their proprietors or the places where they were owned. The *Paulars* were a flock originally owned by the Carthusian Friars of Paular; and were regarded as one of the handsomest and best flocks in Spain. They have been imported to the United States and fine flocks are cherished in New England and in New York. *Escurials* is the name of a flock belonging to the King; and so called from the Escurial, — a palace built by Philip II, to which was attached a convent. The royal flock, so named, was given by the king to the friars of the Escurial.

Many other named flocks exist among the Spanish Merinos, such as *Aqueirres, Negretti, Montarco, &c.*

Rambouillet. — In the year 1796, the French government imported from Spain between three and four hundred Merinos and sent them to an establishment at Rambouillet, not far from Paris. We extract from the American Shepherd a description of them by Mr. Gilbert, of the French National Institute.

"The stock from which the flock of Rambouillet was derived, was composed of individuals beautiful beyond any that had ever before been brought from Spain: but having been chosen from a great number of flocks, in different parts of the kingdom, they were distinguished by very striking local differences, which formed a medley disagreeable to the eye, but immaterial as it affected their quality; these characteristic differences have been melted into each other, by their successive alliances, and from them have resulted a race which perhaps resembles none of those which compose the primitive stock, but which certainly does not yield in any circumstance to the most beautiful in point of size, form, and strength; or in the fineness, length, softness, strength, and abundance of the fleece."

Saxon. — The Elector of Saxony, in the year 1764, procured about 200 of Spanish Merino sheep by means of a special negociation with the Spanish Government. Afterwards others were procured. These were bred and tended with scrupulous care under the direction of Government; were diffused through the German Empire. By careful improvement they have been made to afford the *finest* wool of any variety; but are much less hardy than the Spanish Merino. In Europe, enormous prices have been obtained for high bred rams of this breed.

"No other breeds are so highly prized on the Continent, and none which command such enormous prices. Mr. Grove has stated, that, while grade Saxon sell for three to fifteen dollars per head, individual rams of uncontaminated blood often bring from 100 to 250 rix dollars; a flock was purchased, destined for Russia, a few years since, for which the average price paid exceeded 500 dollars; and Mr. Spooner states that, latterly, rams have been sold at the almost incredible prices of 100 to near 300 guineas per head. The cause of these extravagant prices has been stated; and so long as there exist grades in society, and the highest of these covet a wardrobe of the finest texture, the breed will continue to be appreciated, and sedulously cultivated."

The varieties of English sheep — Southdown, Bakewell, Cotswold, &c. — we will give an account of hereafter.

Straw is a fodder not to be undervalued, — particularly oat straw.

Tight lacing and *loose habits* are the most fruitful causes of consumption.

COMMUNICATIONS.

BEES---ANSWER TO ENQUIRIES.

Messrs. Editors:—Noticing in the 4th No. of "THE FARMER AND GARDENER," the interrogatories and suggestions of your Laporte correspondent, I will offer the following on the subject of Bees, and will follow the same order as himself in my remarks.

As to the fact of Bees living and not eating their honey during the winter, *merely* because they are in a "dark place," I am not able to say; but this I know, that if they are kept in a cold place, (and I presume its being dark would make it the better,) they live during the winter and consume none of their honey, and will come out in the spring more healthy and with fewer deaths, than any other way in which I have ever seen them wintered. The Bee becomes torpid at about thirty-two degrees, Fahrenheit, and keeps in that state at from 32° to about 36°; and when in that state eats no honey, and, in my opinion, has no necessity for air. Mr. H., an acquaintance of mine, buries his Bees every winter in the bottom of a dry cellar, by digging a trench of sufficient depth to receive that of the hive; lays a board under the hives and one on top, then some straw, and covers them a foot or more deep with the earth taken out of the trench. I have once seen them taken out in the month of April, and the comb was full of honey nearly down to the bottom, and fewer dead Bees than is common in the spring.

A neighbor of mine, in the winter of '42—3, accidentally wintered a swarm of Bees, and they are now living, without either honey or comb in the hive. Late in the fall, thinking they could not live through the winter, he took out all the honey and accidentally put the hive on the north side of a tight post and rail fence, under the shade of a large apple-tree. To this was added, by accident, a number of plank, one end on the fence, the other on the ground. I saw them in April working finely, and in good season they swarmed.

As to bee-houses, my experience and observation go decidedly against them. I have witnessed a number of cases in which they have done badly after a few years, and have taken them out of the houses and put them into hives for my neighbors. I have also known them to swarm when they had room enough for a barrel of honey; and this, I think, a fortunate circumstance, for but one Queen will exist in the same colony, and she cannot furnish eggs to keep a colony much larger than may comfortably occupy a hive holding one bushel, with boxes or drawers. I believe it natural for Bees to swarm, and every thing does best when nature is least interrupted.

The kind of hives of which your correspondent speaks, are good. I have tried them sufficiently to know; but I am more in favor of John M. Weeks' Vermont patent hive. I have now used them four years, and have abandoned all other kinds. I have two hives which yielded me, last year, nine dollars worth of honey each; two which yielded six, and one three dollars worth, and some which promised as fair in the spring as any, did nothing but fill their hives. To keep the comb new and clean, I turn my hives up in April, and take out one half of the comb on one side from bottom to top of the hive. The next spring take out the other half. For this purpose, I have a piece of hand-saw blade, about two and a half inches square, riveted on to an iron two feet long, with a wooden handle at the end of the rod. Having turned up the hive on to the back side, I blow the smoke of cotton rags into the side of the hive from which I intend to take the honey, until I drive them to the other side, and many will pass out and round on to the outside of the hive, and then remove the honey, occasionally blowing in more smoke.

I have seldom known two hives put into the same apartment of a small bee-house, but what they all ran together and became one.

There is another very formidable difficulty in keeping bees at this time—I mean the bee-worm; and since I have used Mr. Week's hive, I have not suffered at all from the depredation of worms. The ease of closing the hive at night and opening it in the morning, enables one to guard effectually against them.

The bottom being suspended at three-eighth's of an inch from the hive, prevents worms from returning into the hive, if they ever fall down; and being an inclined plane, enables the bees easily to get them on to the ground.

As to the difficulty of hiving bees, I never have any of that; if I keep a hive in a suitable place, my bees generally go into it. If not, Mr. Week's "Bee Manual" gives directions for hiving, which are easily followed.

One thing more. If Bees are kept in a house, and do not swarm, the stock cannot be increased much beyond what it could if they were kept simply in a hive, because the Queen cannot supply the eggs.

I will, at any time, answer any questions any of your correspondents may ask, as far as I am able, and when I cannot answer, I will ask more.

Yours, &c.,

JOHN L. RICHMOND.

P. S. Any place which will preserve ice during summer will preserve Bees during winter, and if ice or snow were put into the place as soon as it could be obtained, it would have a tendency to preserve the right temperature during winter.

GEESE AND DUCKS.

When I was a boy I resided near a city, where was a good market for poultry, and the farmers in the vicinity realized a considerable profit therefrom; and as our practice of rearing geese and ducks was quite different from the prevailing custom in this country, I will describe it, as it may be of advantage to some to adopt it.

It was our practice to keep through the winter four females and one male, of both geese and ducks, from which were reared the flocks of the coming season. For geese, we had a pen about twelve feet by six, in a sheltered situation; and the north end was made tight, and divided into four apartments for nests, with a roof extending over them far enough to keep them dry, but left open to the south. A piece of rail or timber was placed in front of the nests, four or five inches high, and the nests filled with hay or straw to a sufficient depth to keep them dry. An opening was left in the south end large enough for the geese to go in and out; and a few weeks before the usual time for them to begin to lay their eggs, they were driven

in regularly every evening, the opening fastened with a board, and a little corn given them in the pen. In the morning, they were let out, and suffered to run at large through the day. It was with some anxiety that the nests were examined in the morning, by the boys, for the expected eggs; and when the first one was found it was carried to the house with the joyful exclamation, "I have got a goose-egg." A half bushel basket was filled with coarse wool, in which the careful mother deposited them each morning as they were brought in successively thereafter; and this was kept in a dry, warm place, to keep them from freezing or chilling. The geese would generally lay from twelve to fifteen each, and then take their nest and keep it; by which the boys knew there were no more eggs to be expected. As some would stop laying before others, none were set until all were ready; and then the eggs were put under them all at the same time. The time was carefully remembered; and, at the end of four weeks, the little urchins were as anxiously watching for the goslings, as they were previously for the eggs. The eggs having been so carefully preserved, it rarely happened that they were not all hatched. The old and young were confined for a few days in a small enclosure of tender grass, and no other food given them; and when the young were strong enough, the flock were put in their appropriate pasture for the season. As soon as the weather was warm enough, the old ones were robbed of their coats, and at each interval of six weeks thereafter, during the season; and the picking extended to the young also, as soon as their feathers were fully grown.

It is quite an art to pick geese properly. The bunch of large feathers under their wings should never be plucked, but left to support the wings; for, if these are taken away, the wings drop, and cause the poor goose much pain and uneasiness until others grow in their place.

In the fall, the young geese are fattened for market. A portion of the young are put in a tight pen, and supplied with corn, water and gravel, until they are fat, and then killed, dressed, and taken to market, and at intervals the residue of the young; and the parents are again left to produce a flock for another year; and they are thus often bereft of their offspring for half a dozen or more years in succession, and then generally go out of office by rotation, but one new member being introduced into the maternal family at a time; and when changes are made, the male is generally from some other flock. By this mode the farmer has the trouble and expense of wintering the old ones only, and has seldom less than forty young geese for market, after taking several crops of feathers from them during the season. Let the reader compare the above with his own mode, and then decide according to their merits.

A similar plan was pursued with ducks, except the pen where they were put at night was covered tight over head, to prevent their flying out. Some little trouble may be expected to get both ducks and geese in their pens at night, until they get used to it; but they will soon learn to come at the call of the boy with his ear of corn in hand, and are easily driven into their pen, for they find they will get corn no where else. Ducks lay more eggs than geese, and the overplus are set under hens—care being taken to set as many at the same time as possible. When the young are hatched, they are confined in a pen made of four boards, to keep them from wandering off in the wet, and are generally fed with corn meal while young; when old enough, they are suffered to run at large, and often much to the annoyance of the poor hen, who cannot follow them into their favorite element.

The young are eaten or taken to market in the fall, and the crops of only the old ones are to be filled in the winter from the farmer's crib.

W. S. J.

What would W. S. J. say, to plucking geese in *February?* I saw a large flock between Edinburgh and Columbus (Indiana,) with their breasts nearly bare, and the ground covered with snow! Is this cruel, or is it all right?

It must be that we got hold of one of these old ones, once, when just put out of office by 'rotation.' It was rotated in the baker,—we thon rotated a few morsels of it in our mouth, in hopeless desire to separate it with our teeth; and lastly it rotated from day to day, in cold slices, in hashes, &c., and really it got tougher every time it was cooked. It must have been one of these venerable progenitors of some ten generations.—Ed.

SPRING PLOWING vs. GRUB AND CUT WORMS.

As the Western Farmer and Gardener is a medium through which the Farmers of the West may all become intimately acquainted, and I hope will make it the organ of their experience in the cultivation of the soil, and as I have been looking for an article on late spring plowing for green sward, and never yet saw one, I have ventured to take up my pen, for the first time in aid of Agriculture, and perhaps if I fail in the first attempt, I will do like the Dutchman, when he went to jump on the horse and jumped clear over him—"I'll try it te ginn."

I have tried fall plowing in old meadow and pasture ground for corn, and also at different times through winter and spring, and am decidedly of the opinion that late spring plowing is the best, both for the crop and ground.

A few years ago, we broke up a piece of old meadow in the second month, [Feb.] for corn; we planted about the usual time for planting in this country. The result was, when the corn began to make its appearance, the grub and cut-worms both commenced their ravages upon it, and soon swept it nearly all. We replanted the second and third time, and finally got it to stand pretty well, after the worms had almost all got their growth. The ground was pretty good, and yielded a great crop of stalks, which kept quite green until frost, and perhaps would have been considerably injured had it been an early fall.

We also kept another piece of the same description until the grass had grown to the height of four or five inches; it was then turned over well, with a good two horse plow, and planted as soon as possible. The corn germinated quickly and had a fine healthy appearance, grew vigorously through the whole season; the turf rotted much

sooner than that plowed in the fall or winter; and the ground appeared nearly as loose as an ash heap, and I do not think there was a hill of it hurt by the worms. I have known repeated instances of this treatment since; and in every case it has done well. The reason why worms do not trouble the late plowed sod, is owing, I think, to the quantity of green food turned under; sufficient to support the worms until the corn gets out of their reach. I have seen hundreds of them right amongst it; but in the presence of a heavy crop of green grass plowed in, I have never known them to do much injury. This treatment, however, will not entirely prevent the ravages of the *army worm*, and if you, or any of your correspondents, can give an effectual method of preventing their ravages, it would at least oblige one of your readers.

I have been a reader of the Albany Cultivator a long time, and have been very desirous to see an agricultural paper supported in our own Hoosier land, every way as well adapted to our soil and climate as that is to theirs; and my anticipations, I hope, will be realized to the full in the Western Farmer and Gardener.

BUSHWHACKER.

Our unknown correspondent has done well to take up his pen; and has given us a good *practical* article; may he live to write five hundred more! We thank him for his kind wishes; but we despair of making the Farmer and Gardener as good a paper as the Cultivator, which is, we think, incomparably the best Agricultural Journal in America. And if it were adapted as well to Western farming as it is to Eastern, we should prefer securing its circulation in Indiana, rather than to establish another one. But it is impossible to make the most of our farmers take a paper from so far abroad, and equally impossible for a distant paper to give that special and minute attention to the details of Western husbandry, which its true interest requires. Therefore, we labor to establish a Western journal. Let others imitate our friend in writing for their own paper; and writing good business articles.—Ed.

LUCERNE.

Most of our farmers are acquainted with this plant only from books. Below, I give my own brief experience (on a small scale) of its merits.

In the spring of 1845, I sowed one quart (or about a pound) of seed. It came up in five days; flowered 8th month 1st; and other plants 9th mo. 21st. Part of the soil was well dug with a mattock, and the seed sown in drills. My farm being several miles from town, weeds would spring up in my little bed, maugre all my efforts to keep them out; and during an absence of a week or more, the weeds overpowered my lucerne and killed a large portion of it. I thought they had destroyed all; but by a careful and very tedious weeding, for the benefit of what still appeared green, I found the roots shot up fresh stems, which with the others, soon overspread the ground, so that very little subsequent weeding was needed. It grew about twenty inches high; and remained green until very late in the fall (11th month.) A few days ago I found the spot quite green with its leaves.

From this little experiment I deduce the following conclusions:

1. Lucerne speedily vegetates. 2. It is easily injured by weeds; (their shade?) and may be destroyed quickly by negligence in keeping the ground clean: and hence 3. Drill cultivation of lucerne, or previous clean tillage of other crops, is essential to its success. 4. It is, under favorable circumstances, in this latitude, a late-growing, and an early-springing, vegetable. J. T. P.

BLIGHT IN PEAR TREES, &c.

The author of the following communication is a well known and very skillful nurseryman in Putnam county, Indiana. We are indebted to him for the suggestion of the unquestionably true cause of the far-famed 'Fire Blight.' Mr. Downing has adopted the theory, but seems to suppose it a discovery of his own. It may be that his observations had led him to the true cause of the evil; but in scientific discoveries, he who first *publishes* a discovery is entitled to whatever merit may belong to it. Now, the causes of the fire blight were published in Hovey's Magazine three or four months before Mr. Downing's book appeared. Even, then, if Mr. Downing did not gather his ideas from that Magazine, (which, one who will compare the two articles, will strongly suspect,) the credit of tracing out the causes of this malignant and alarming affection of the Pear tree must be awarded to Mr. Ragan.

His observations in the following article correspond with our own upon the pear trees in this neighborhood; but our peach trees are in a more promising condition, I think, than either in Wayne or Putnam county.

We should be glad to hear, from other quarters, of the condition of fruit orchards, and of the prospects for fruit.—*Ed. Far. & Gardner.*

I had hoped, last year, that this malady would cease, at least, for a term of years sufficient for us in the West, to test the quality of a few more of the fine new Pears. But I almost fear it is a delusive dream; for, I now find Blight situated among the branches of almost every tree. This blight differs a little from that of the two last years. The blight of those years was produced when the sap was in brisk circulation; the leaves on; and the tender buds, in many instances, not yet wound up. In such cases there would be a portion of unelaborated sap passed down the vessels of the descending sap, which would become stagnant at various places along the different branches of the tree, the annual shoots and small branches above those deposites remaining to all appearance perfectly healthy. Indeed, I have both grafted and budded from such twigs, and found them to grow well; but, after a few months of warm weather, those tops from which I have taken such grafts

and buds, have languished and died. The present blight is more on the order of winter-killing. The young shoots are *killed*; and will not grow if used for grafts. This is not the case with all; but with me it is true of most of the varieties of Pear. The pith is darkened, the bark ruptured, with a blackness extending down to the larger branches. These appearances are now visible on kinds that have been heretofore considered hardy; such as Pound, William's Bonchretien, Julienne, Rushmore's Bonchretien, Echasserie, Rousalette de Rhiemes, &c. The Seckle, Early Butter, Harvard, Green Summer Sugar, and, I think, the Easter Beurre, indicate great hardiness; but the coming summer will give us proof.

Last summer, I tried some experiments. I put blight matter in Pear, Plum, Cherry, Apple and Peach; but in none did it take effect, except in the Pear, nor would the matter that had run out and turned black produce blight, even in the Pear; but by opening the bark at a blighted place, and taking a yellowish green matter, then raising the bark on a healthy tree and inserting and securing the matter, by a bandage of green pear leaves, in every case it took effect and operated just like blight. I also tried inserting molasses, molasses and vinegar, and vinegar alone; but none of them took effect. When we see young suckers rising from the roots of blighted trees, and shortly turning brown and dying, we are liable to be misled, thinking they are killed by the blight matter falling on them. I think their death is caused by the circulation of the morbid matter, which is taken up by the suckers. I did not remark that our blight for 1846 was seated on the 28th of last November. The Thermometer here then sunk to 10° below zero, which was too cold for the unripe state of the Pear wood.

Our crop of Peaches was mainly cut off at that time; we yet have enough alive for a small crop; some trees have live bloom enough for a full crop; others for a light one; and some, none.

REUBEN RAGAN.

Greencastle, Ia., Feb. 7, 1846.

DESCRIPTION OF SEVERAL APPLES.

I am reminded of two varieties of apples I met with some time ago, and described on a scrap of paper, now lying by me. As I have not seen the fruit noticed in any catalogue which has fallen in my way, I shall here transcribe the names and descriptions for the Farmer and Gardener.

I met with the first on the farm of Andrew Hampton, near this place: he calls it

Hampton's Winter Redstripe.

Size, two and six-tenths inches long; three inches wide. Form, globular, with a moderately flattened base, and a remarkably obliquely truncated summit. Pulp, tender, juicy, whitesh yellow. Color, yellow, with rather distant crimson streaks, which are partially blended with frittered red. Surface, slightly reflective, dots not numerous, and the larger ones triangular. Flavor, mild, and pleasant. Stem, half inch long, reaching half way to the verge. Eye, rather open; in a deep cavity; ripens in 11th month.

The other I found near Camden, about twenty miles south-east from Richmond. The owner had but the one tree: he called the fruit

Red Roman Stem.

Size, two and a half inches long; two and three-quarter inches wide. Form, globular; nearly equally flattened at both ends. Pulp, moderately juicy; whitish; toughish. Color, red, (frittered,) nearly all over: streaks sometimes apparent. Surface, dull, numerous coarse lineoles, and large, often indistinct dots. Flavor, pleasantly sweetish. Stem, half inch, moderately slender, just reaching the verge; in a contracted cavity, which is partially closed by a Roman nose. Eye, open; in a slightly contracted cavity, nearly half inch deep. Ripens in the early part of winter; keeps late, and without abatement of flavor.

[If this apple is what we suspect it to be, it is quite common in the orchards of central and southern Indiana. — *Ed.*]

Here also I ate a large, red, pleasant apple, called the *Jersey Red*, which our host told us he kept two years.

J. T. P.

LETTERS OF A COSMOPOLITE---No. 3.

LOUISVILLE, Ky., Feb. 17, 1846.

From the Queen City I have indited no letter, not because there was nothing to see and tell about, but because 'tis very hard to make a selection of "*best* where all is so good." I ask pardon of the good citizens of Louisville and vicinity, when I say that the same difficulty does not obtain here; and therefore, here comes letter the third. Of Cincinnati, I may perhaps say a word or two at some other time, or when my lot is there fixed once more.

Louisville (in the language of 1837,) "is a small town near Jeffersonville, and connected with it by a ferry-boat, which plies between three or four times aday." Its population is considerable; its "lions" are perfectly memorable, and its mud and water at this season perfectly intolerable. So much in brief.

One thing there is, however, that shows great taste on the part of the citizens, and that is, in having the streets so well lighted, and the houses, public and private, so adorned by gas-lights. On the other hand, great negligence and want of true economy has been shown in the limited supply of water, and in the imperfect draining of the streets.

By the favor of a gentleman of this city, I obtained admission to the gas-works, with *carte blanche* for questions, and unlimited right of search. I was interested and instructed, and, perhaps, a short description may not be uninteresting to those unacquainted with the mystery of gas, i. e. gas, for illumination not political gas; of which latter we are full even to bursting.

The material used at the west is bituminous coal of the best quality. The process is, in short, 1. Destructive distillation. 2. Washing. 3. Condensing. 4. Purifying. 5. Measuring. 6. Distributing.

The first step, distillation, is carried on in iron ovens shaped like a ⏢ and furnished with gas-tight lids and suitable scape-pipes for the gas. They are about eight feet long and ten inches or more high. These ovens are set in "benches" of three each, over powerful fires, and are kept red-hot. Two bushels of coal nearly, are thrown into each, and the lid screwed down, and the fire kept

up. The coal is resolved by the heat, chiefly into the following proximate elements: carburetted hydrogen, (the gas wanted) a little ammonia, some sulphurous acid gas, and coke; bitumen or coal tar, naptha and other similar chemical proximates; sulphuric acid in small quantity.

The coke remains in the oven, and after cooling, is used for supplying the fires. All the rest pass out of the retort or oven, and are separated from the gas, as follows: By bubbling the gas through water in suitable tanks, the tar and naptha, sulphurous gas and ammonia are cooled; the first two floating upon the surface of the water and the last two partially absorbed by it. The gas goes then to the condenser, more properly the *cooler:* which is merely a great length of iron pipe doubled up into small compass, through which the gas circulates, thus becoming cool by giving off its heat to the air on the outside, depositing the ammoniacal vapor at the bottom turns of the pipe. The gas is now almost pure, by these mechanical means; but to render it still more perfect, it is now conducted to the "purifying house," and there is passed slowly through fresh slacked lime, contained in large tanks for the purpose. By the affinity of the lime for moisture, and all acid vapors, particularly carbonic acid, the gas is at last robbed of all its original companions, and sent all about to be *measured* and *burned.* The gas-meter (or measurer) is a very ingenious machine, too complicate for verbal description, but which acts so as to register upon several dials the number of cubic feet of gas that pass through it, from one foot to *fifty millions.* Attached to it is a "tell-tale," an ingenious contrivance by which the superintendent can tell whether and how often the hands have failed during the night to recharge the ovens, and this, too, without watching the machine itself; for it registers with pencil and paper like a rigid schoolmaster, all the failings of those it oversees. The gas now goes to the immense cisterns called gasometers or gasholders, which are huge inverted tubs made of plate iron, *floating* in ponds to keep in the gas. They hold from twenty to one hundred thousand cubic feet, and by their great weight pressing upon the gas, they serve to force it out with sufficient power from the "burners" in the city, to produce the brilliant jets we are all familiar with.

Gas works are not without interest to the suburban farmer. Much, yes most of the waste material would form very powerful manures, while at present it is entirely thrown away. The water from the "washers" and "condenser" becomes by a day's use quite perceptibly charged with ammonia, sulphur, and various alkalies; so highly, indeed, that in many cities it is bought by the gallon and boiled in order to collect the ammonia for other purposes. Now, this water sprinkled over waste charcoal, would leave all its virtue behind, and greatly improve the manure. Again; the lime from the purifiers has lost none of its energy as a fertilizer, with which we are now all familiar, but has gained much that it had not before, and if used in connection with decayed animal compost, (which abounds around all western cities) would form a very active fertilizer. And now that I have broached the matter, I will refer city gardeners to the refuse carbon of the prussiate of potash manufactories, and the boiled and decayed bones of the tallow chandlers; the muck made where city hogs roll, in summer; and in short everything that is really dirty and rotten about a city, as exceedingly valuable manures, far richer than any that the more retired farmer can obtain.

Of Louisville, to return to my location, I will say, generally, that it is evidently far behind Cincinnati in point of wealth, enterprise, beauty, size, and progress. The causes I will not discuss, merely saying, that naturally, Louisville is far more eligibly situated, both in respect to the back country and the river site than Cincinnati, and I know of no reason to assign for the disparity, unless it be that Kentucky has so strenuously hung on to that clog of all advance, *Slavery.* T. K. B.

"MISTAKES CORRECTED"—A LATER VERSION.

I cannot forbear expressing my gratification at the friendly manner in which my brief strictures upon a letter from Wayne county, have been commented on by the writer of that letter. I shall endeavor to reciprocate the courtesy; and elucidate, as well as an evening's leisure will permit; and as briefly as expediency will justify.

It appears to me, the writer does not observe the necessary distinction between a calcarious *soil* and calcarious *earth.* A *soil* is said to be argillaceous or calcarious, either when clay or lime exist in it, or exist in it in unusual quantities: and yet it is by no means necessary that these earths should "predominate." Our *soils* are truly often, perhaps I may say generally, argillaceous; but the writer stated that argillaceous and calcarious *earths* predominated. *This* is the allegation animadverted upon; and it is doubtless true that such a soil will "*scarcely* be found in the Western States." As it is probable, the impression the writer has received, and conveyed, may be common to other minds, I will, with a little latitude of expression, extend my assertion so as to say: that a *soil* containing *lime* and *clay* in predominant quantities, must be sought for, only among the chalk-hills of England, the coral grounds of Florida, and the clay-pit of the potter.

I infer from the writer's remark, that analyses have proved that "a soil *consisting* [the italics are mine] of eighty-six parts of silex, twelve of clay, and two of lime, would be very unproductive. "That in this, also, he labors under a misapprehension. Such a soil would, undeniably, be not "*very* unproductive" but unproductive *altogether* of any cultivated plant, in existence, that I am apprized of. Most plants could no more thrive upon these three dishes, than could a man on glue, magnesia and iron; all of which, nevertheless, are constituents of his body. On this very point, I might have founded an exception, had it been necessary, to the writer's statement that our soils *consist* of these three earths: in *any* proportion, these earths alone would truly make a barren soil. But construing his language, as I supposed he wished to be understood, I restricted my remarks to the three earths he had enumerated, merely to show the usual proportion in which they occur in our fields. And to show that these *proportions* do not make a "very unproductive" soil when properly mingled with other constituents, I will here give the average of five specimens of earth, from different parts of the States of Ohio and Illinois; after observing that Dr. Dana; (the analyst in this

case) says the specimens were from the "most productive parts of those States." Granitic sand 83 parts, carbonate of lime 1.8 parts in 100 parts of the soils.

Whatever our State Geologist may have *meant* by the language quoted by the writer, it is clear that *analyses* ought to be conclusive; but I suspect he does not by any means wish to be understood as the writer would render his language; for geologists well know, that though a soil may rest immediately upon lime-rock, it does not necessarily contain lime; and so of other rocks and their superincumbent soils. It is only when the soil is formed, in part, by the *disintegration* of rocks that it necessarily contains the constituents of those rocks. I conceive it most likely, therefore, that the writer's intimation is correct, that he may have been misled, not properly by the "report," but by not successfully applying his "rule of construction."

By plowing in grass and weeds, (the writer says,) "I am confidant that land of ordinary richness, may be maintained for ANY LENGTH OF TIME. I have *fully tried* the experiment." My remark upon this statement, was not so much directed to the *lapsus perspicuitatis*, as to the doctrine taught by the writer. It is due to scientific agriculture to say, that it cannot acknowledge such teachings. The weeds and grass can convey no other mineral constituents to the soil than they have abstracted from it, during their growth. Hence, to plow them in, is but to return to the earth, what minerals the plants borrowed from it. While this restoration is made by the weeds and grass; none is made by the wheat, oat and corn crops. These *carry off* annually, large portions of potash, magnesia, and lime; and if cultivated for "any length of time," they would undoubtedly exhaust the soil. This would just as certainly be the result of such tillage, as that a coffer would be totally emptied, by one man taking up cent by cent and putting it back again, while another takes up cent after cent and carries it away. If the soil be rich in these and other minerals, the land may be tilled without any extraneous additions, for many times, "ten years;" but exhaustion will come at last, as sure as pay-day. An oak will grow fifty times "ten years," and then die. Methusalah got almost nigh enough to see his thousandth year; but I do not know that he calculated on living forever, at least on this soil; though I must acknowledge his prospect was very encouraging, after trying the experiment 969 years.

With these examples before me, I cannot think the writer has "fully tried" the experiment in question; and I have ventured to say thus much (perhaps too much) that others may not be misguided by his, no doubt, well-intended instructions. The improvement in his land was probably owing to the deep and seasonable plowing; the addition of carbon, &c. to the soil by the weeds and grass, and to its not being poached by cattle: and that improvement might have continued, so long as the quantities of potash and other essential minerals remained above par; or even equal to the wants of a profitable crop.

J. T. P.

PEACH PROSPECTS.

If it is elsewhere as here, the peach-loving community will be disappointed in their anticipations in a crop of Morris' White, Melocotone, Lemon Cling, and all the budded and *common* kinds: the whole tribe of Jew and Gentile peaches has been destroyed. I have not been able to find a single living embryo peach. My own orchard is on the north side of a hill; contains about forty trees, and perhaps a dozen varieties or more. Some of these trees bloomed last fall on the 1st, and afterwards on the 20th, of 10th month. For the time at which peach trees generally blossom at this place, see "Springs in Wayne County," page 39 of the present volume.

I incidentally discovered just now, that in the article "Springs in Wayne County," in the last number of the Farmer and Gardener, the temperature of the 4th month of 1845, has been omitted by some of us: perhaps I neglected it. Take it now as follows:

Medium noon temperature, 67°; highest, 82°; lowest, 44°. This discovery led me to glance at the other years; and I found no record of the *lowest* temperature of 3d month, 1838, at noon. I ought to have noted this, (if I did not) at 33°.

J. T. P.

SELECTIONS.

STRUCTURAL BOTANY APPLIED TO HORTICULTURE.

General Nature of Plants.

HORTICULTURE is the application of the arts of cultivation, to the improvement for the use or delight of man, as well as to the domestication, of the vegetable kingdom.

Agriculture or arboriculture are included in this definition.

Plants are organized bodies, composed of a substance called *tissue*, which is so delicate and thin as to permit fluids and gases to pass through.

This tissue exists either in the form of minute bladders called cells, which are filled with juices and lie close to each other, leaving however intermediate passages where they do not touch — this is cellular tissue; or in slender tubes called woody fibre which are closed at each end, conical, and placed side by side.

Or in a fibre either rolled up spirally like a wire spring, or forming long cylindrical vessels placed end to end, which finally become continuous and lie close to each other; this is called vascular tissue — from *vas* a vessel.

Cellular tissue when just formed is very lax or coheres loosely and possesses great powers of absorption.

Late microscopic discoveries have enabled botanists to distinguish several varieties of cellular tissue. Even their names, however, would be misplaced here.

It constitutes the soft and brittle parts of plants, as pith, pulp, the soft part between the veins of leaves, the tender parts of the flower, fruit, &c.

Succulent plants, as the cactus, have an excessive development of this tissue.

It may be considered the most essential kind of tissue, because, while no plants exist without it, many are composed of nothing else.

Woody fibre is what causes stiffness and tenacity in certain parts of plants; hence it is found in

the veins of leaves, and in bark, and it constitutes the principal part of the wood.

The most remarkable form of vascular tissue is the *spiral vessel*, which has the power of unrolling with elasticity when stretched.

Other kinds of vascular tissue are incapable of unrolling, but break when stretched.

Spiral vessels are not found in the wood or bark, and rarely in the roots of plants.

Vascular tissue of other kinds is confined to the root, stem, veins of leaves, petals, and other parts composed of leaves. It is not found in bark.

The common office of the tissue is to convey fluid or air, and to act as the receptacle of secretions.

The cells of cellular tissue convey fluids in all directions through their sides, and absorb with great rapidity; when placed in contact with cells of the same species they join together and adhere —as is exemplified in budding and grafting — the cells adhere, then form woody fibre — but cells of different or widely related species will not form a junction.

This is the operation of grafting or budding, in which, however, the similar parts of the stock and scion must be brought into close contact, and kept so for some time, and this must be done during the growing season.

Woody fibre conveys fluid in the direction of its length, gives stiffness and flexibility to the general system, and acts as a protection to spiral and other delicate vessels.

Spiral vessels convey oxygenated air.

Other vessels probably conduct fluid when young, and air when old.

As the bodies of which all tissue is composed are perfectly simple, unbranched, and regular in figure, having, when elongated, their two extremities exactly alike, they are more or less capable of conveying gaseous matter or fluids in any direction; and, consequently, a current may be reversed in them without inconvenience: hence, inverted cuttings or stems will grow.

All parts of plants are composed of tissue, whether they be soft, as pulp: or hard, as the bony stone of a peach.

With regard to horticultural operations, the parts of plants should be considered under the heads of *root, stem, and leaf-buds, leaves, flowers, stamens and pistils, fruit, and seeds.*

Root.

The ROOT is the part that strikes into the earth when a seed begins to grow, and which afterwards continues to lengthen beneath the soil. But some roots do not require the soil, and draw their nutriment from the atmosphere, as the ivy, air-plants, &c., others live on the juices of trees, as the mistletoe, &c., they are called parasitical.

It is distinguished from the stem by the absence of leaves in any state, of regular leaf-buds; of evaporating pores, or *stomata;* and of pith in exogenous plants.

Therefore, such underground bodies as those called tuber of the potato; bulb of the onion; and solid bulb or cormus of the crocus, are not roots.

The office of the root is to absorb food in a fluid or gaseous state; and also to fix the plant in the soil, or to some firm support.

The latter office is essential to the certain and regular performance of the former.

It is not by their surface only that roots absorb food; it is chiefly by their young and newly formed extremities, called *spongioles.*

Hence the preservation of the spongioles in an uninjured state is essential to the removal of a plant from one place to another, and care should be taken to preserve even the smallest fibres of the roots uninjured.

A spongiole consists of very young vascular tissue, surrounded by very young cellular substance.

It is therefore one of the most delicate parts of plants, and the most easily injured.

Hence whatever is known to produce any injurious action upon leaves or stems, such as certain gases and mineral or vegetable poisons, will produce a much more fatal effect upon the spongioles.

These spongioles have no power of selecting their food, but will absorb whatever the earth or air may contain, which is sufficiently fluid to pass through the sides of their tissue.

So that if the spongioles are developed in a soil which is of an unsuitable nature, as they will still continue to absorb, they cannot fail to introduce matter which will prove either injurious or fatal to life, according to its intensity.

This may often explain why trees suddenly become unhealthy, without any external apparent cause.

Plants have the power of replacing spongioles by the formation of new ones; so that an individual is not destroyed by their loss.

But this power depends upon the coöperation of the atmosphere, and upon the special vital powers of the species.

If the atmosphere is so humid as to hinder evaporation from the leaves, spongioles will have time to form anew; but if the atmosphere is dry, the loss by evaporation will be so much greater than can be supplied by the injured roots, that the whole plant will be emptied of fluid before the new spongioles can form, and death will ensue.

This is the key to the operations of transplantation and propagation by cutting scions and buds.

As roots are destitute of leaf-buds, and as leaf-buds are essential to the multiplication of an individual, it should follow that roots can never be employed for the purpose of multiplication.

Nevertheless, roots have, occasionally, the power of generating leaf-buds, which being latent, and not according to the usual operations of nature, are called adventitious; and when this is the case, they may be employed for the purpose of multiplication; as those of Cydonia and Japonica, &c.

The cause of this power existing in some species, and not in others, is unknown.

It is therefore a power that can never be calculated upon; and whose existence is only to be discovered by accident.

The immediate cause of the formation of roots is at present involved in obscurity; but the fact is well known that some plants when propagating by cuttings produce roots with much more facility and in a shorter time than others.

Darkness, moisture, and perfect rest, seem necessary for this purpose — as well as a downward circulation of the sap, which is effected by the action of the leaves on the upper part of the stem — nor can the roots exist by themselves without the

leaves to create the action of drawing up the juices they absorb—therefore a cutting without leaves will soon perish.

Although roots are generated under ground, and sometimes at considerable depths, yet access to a certain quantity of atmospheric air appears indispensable to the healthy execution of their functions. This is constantly exemplified in plants growing in the earth at the back of an ill-ventilated forcing-house, where the roots have no means of finding their way into the earth on the outside of the house.

The spongioles and newly formed parts of the root contain considerable nitrogen, a supply of this gas therefore seems necessary to their health. Manure which contains nitrogen in abundance must therefore be of consequence to them. It has lately been asserted that those seeds which contain most nitrogen vegetate the earliest.

It is supposed by some that the introduction of oxygen into their system is as indispensable to them as to animals.

It seems more probable that the oxygen of the atmosphere, combining with a certain quantity of carbon, forms carbonic acid, which they absorb and feed upon.

It is at least certain that the exclusion of air from the roots will always induce an unhealthy condition, or even death itself. This may be one of the reasons why stiff, clayey, tenacious soils are so seldom suited to the purposes of the cultivator, until their adhesiveness has been destroyed by the addition of other matter, such as sand or manure.

After the juices have circulated through a plant and performed their destined offices, what remains unfit for its further nourishment returns to the spongioles, is by them thrown off—this substance so thrown off is unsuitable and even poisonous to this species of plant, but is not so to other species; it may even be suitable to them.

Hence soil may be rendered impure, (or, as we inaccurately say, worn out) for one species, which will not be impure for others.

This is the true key of the theory of rotation of crops.

This also may serve to explain in part why light soil is indispensable to so many plants, and heavy or tenacious soil suitable to so few: for in the former case the spongioles will meet with little resistance to their elongation, and will constantly be continually quitting the place where their excrementitious matter is deposited; while, in the latter case, the reverse will occur.

It will also be one of the reasons why an orchard planted too thickly of the same trees cannot thrive, the trees by their roots soon absorb all the nutriment from the earth, and only those on the borders can send out their roots to a distance for fresh juices, those in the centre have little else to feed on but the substance thus cast off by themselves and by the others around. And why young apple trees planted on the site of an old apple orchard cannot thrive, the earth is full of the poisonous matter thrown off by the roots of the old trees; but probably young cherry or peach trees would succeed. Likewise it accounts for the natural rotation of trees which has been discovered to exist in the ancient forests in this part of the globe; for the necessity of repotting plants grown in green-houses every one or two years, and for many other circumstances in horticulture for which hitherto sufficient reasons had not been given.

Much of the healthy action of the root depends on the warmth and moisture of the soil. A late German writer, Mr. Writgen, has made it appear probable that much more depends on this than on the geological nature or chemical state of the soil, and when it is considered that the salts usually found in the earth are more readily soluble in a warm moisture than in a cold one, and also that heat is favorable to decomposition and the production of gases—it seems likely there is truth in this position.

During the summer in the temperate parts of Europe, the earth at one and two feet depth is one to one and a half degrees higher in temperature than the atmosphere, but in tropical climates the earth is many degrees hotter. The system of applying bottom heat to accelerate the junction of the parts of plants that have been grafted, budded, or inarched, is successful from its exciting the healthy and rapid action of the roots in absorbing juices and supplying them in abundance to the stock.

The root is never entirely dormant except when frozen; during the winter it is slowly collecting juices for the supply of the spring; where the period of rest or winter is long, the store of juices is large, and vegetation in the spring is rapid and luxuriant. This accounts for the quick growth in northern climates where plants commence vegetation and mature their fruit in the short space of three months.—*Teschemacher's Elements of Hort.*

THE MODEL FARM OF OHIO.

The model farm of this State contains 100 acres, seventy-five of which are well cleared, and the whole under fence. Sixty acres are embraced in one enclosure, and this includes all the arable and meadow land upon the farm. The buildings are all of stone, neat, durable and commodious. The dwelling is not large, but capacious enough for use of the family, and a room and a bed or two for an occasional friend. The kitchen and stables are supplied with water from the same spring. No stock but hogs and sheep are permitted to graze. The cattle and horses are constantly kept in their stalls, and are always in good order. The cows are at all times fat enough for the butchers, and the growing stock at two years old attain the weight of ordinary steers at four. During the summer they are soiled, with green food, consequently, twenty acres in grass is sufficient to keep four horses and ten cows with their offspring until the young stock are ready for the market at three or four years old, when they average him thirty dollars per head. Of these he makes it a point to sell ten head a year. For his stock he raises about one acre of roots—sugar beets, mangel wurtzel and turnips—each year, which yields him on an average about 1500 bushels. Of corn, he cultivates five acres a year, which by proper culture and judicious rotation, yields him 500 bushels.—Five acres in wheat gives yearly 150 bushels.—Five acres of oats, 300 bushels.

He has an orchard of eight acres, in which he has 200 apple trees, twenty-five pear, twenty-five plum, 100 peach and fifty cherry trees. This is

divided into four compartments of two acres each. Two of these, he plows up every year, and in the spring plants them in Jerusalem Artichokes. Here he keeps his hogs. In the two that are plowed, he has a clover and orchard grass ley, in which the swine feed from the middle of May to the first of August, when they are let into one of the artichoke yards, and range at will into the two grass yards, and this till winter, when they are passed into the second artichoke yard, where they are kept till the grass has sufficiently advanced in one of the fields to turn them into that. Thus upon grass, roots and fruit, the swine are kept so thrifty, that a few bushels of grain are sufficient to make them ready for the butcher. In this way he manages to kill thirty hogs a year, which will average 400 lbs. each. He gives them beet wintering.

His sheep range principally in the woods, with a small pasture of five acres. He keeps seventy-five head, which yield him three hundred pounds of wool a year.

As this farmer has raised a large family, and raised them all well, having given each child a good practical education, I was curious to look into his affairs, and as he keeps a regular account current of his transactions, it gives him no trouble to inform me of the result of this mode of proceeding, which is briefly as follows:

Product of the farm—	
10 Beef Cattle, average $30 per head,	$300
25 Hogs, at $12 per head, - -	300
200 bushels Corn at 25 cts. per bushel,	50
Product of Sheep, - - -	100
Product of Dairy, - - -	200
Product of Orchard, - - -	300
Other and smaller crops, - -	100
	$1,350
His hired labor cost him on an average per annum, - - -	300
	$1,050

Thus, from 100 acres of land, even in Ohio, this man has been able to lay by, and invest at interest, on an average, $500 a year for the last twelve years. He has now some eight or ten thousand dollars at interest, and his home is a home indeed. Who does better on a farm of 1000 acres? Or who has improved his condition by going west, more than he has by staying here? Of course like others he has suffered somewhat from unfavorable seasons, in some of his crops, but his correct system of culture and intelligent management generally, obviates every difficulty which spring from this source, and as his crops are always better than his neighbors', the advance in price more than makes up the deficiency. His system of saving and making manures, turns everything into the improvement of his soil, weeds, ashes, the offal of his stock, soap suds, bones, and everything that will tend to enrich it, are carefully saved and properly applied.

The history of this man is brief, but to the farmer, interesting. He began with the patrimony of good sense, sound health and industrious habits. Excellent so far. In 1830 he had six children and $3,000 in cash. He bought this farm in a state of nature in 1830, for which he paid $400. He expended $400 more in clearing his land, in addition to his own labor. He first put up a temporary cabin in which he moved his family. $1000 he put out at a permanent annual interest, and the remaining $1,200 with the earlier profits of his farm, he appropriated to the erection of his buildings, which were complete in 1834. In the selection of his fruit, he sought for the best varieties, which always gave him preference in the market. So of his stock. In this he avoided the mania of high prices, and has made up in judicious crossing and breeding, what others seek at great cost in foreign countries. Everything he does, is done well. Everything he sends to the market commands the highest price, because it is of the best kind. In his parlor is a well selected library of some 300 volumes, and these books are read. He takes one political, one religious, and two agricultural papers, and the N. A. Review; refuses all offices; is, with his family, a regular attendant at church, and is a pious, upright and conscientious man. He is the peace-maker in his neighborhood, and the chosen arbiter in all their disputes; he loans his money at six per cent., and will take no more.

He says he wants no more land for his own use than he can cultivate well—no more stock than he can keep well—more land will increase his taxes, his labor and expenses will be less profitable.

Who will be happy and follow his example?—*Ohio Cultivator.*

We will send the Farmer and Gardener to this man, just as a mark of our respect, if brother Bateham will give us his name.—Ed.

THE GRAPE CULTURE.

The Vine Nursery, preparatory to beginning a Vinyard.

Mr. Lemay:—To start well is of the first importance in any business, and of agriculture especially. In most treatises on vine culture it is recommended to begin a vineyard by planting out cuttings, and not unfrequently this plan is attended with much unavailing labor and discouragement. After all the preparation of ground and the like, many of the cuttings often do not vegetate, and, if a dry season ensue, those that sprout frequently die. At least this was my experience some seventeen years since. And out of three hundred Scuppernong cuttings that sprouted well in the spring, but bare one was alive in the fall. I had not then the knowledge that this kind of grape very rarely succeeds by cuttings in any sort of season. The way of propagating the Scuppernong is by layers, or that of burying some of the sprouts grown from the lowest part of the vine. The spring is the best time, so soon as sprouts start, say a foot or so long. Cover with earth so as to leave the end of the sprout out a few inches. In the fall they will be found to have small roots attached; and with any roots, however small, a Scuppernong vine will surely grow, if transplanted with proper care. But my plan, to prepare them for making a bearing vineyard speedily, is to cultivate them in the nursery, say one, two or three years after detaching them from the parent stocks. Vines thus prepared for a vineyard, if properly transplanted and cultivated with common care, bear some the first season in the vineyard, and pretty well the second. So my own experience, and so that of

others, as I am informed by purchasers in different parts of the country whither sent. I propagate other sorts of vines by layers also. But my usual mode with others or most others is by cuttings, as follows:

In ground previously put in order, I run deep furrows three feet apart, and therein, slantwise, I place cuttings a foot or so long, and a few inches only apart in the furrow. After the cuttings thus placed, and one end stuck into the bottom of the furrow a little, and the other end left so high as not to be quite covered, I run a furrow along side to cover them nearly. And, with a little adjusting with a hoe perhaps, the plant is finished. The after culture is, to keep the ground clean and loose. If the above be done in the fall most of the cuttings sprout and live; but if some die, there are still enough, generally, to have a well set nursery. If found too thick, some, or say every other one, may be removed after the first season's culture. But from my nursery, I keep thinning out to suit the call of customers. For, as my price varies, say from fifteen to seventy-five cents each, according to age, size and number taken by one remittance and order; different persons choose small as well as large rooted vines; and I add, others take cuttings only at their low rate to make their own nursery as preparatory for a vineyard.

As American vines are perfectly hardy, no need of any such trouble as laid down in European treatises; such as covering and uncovering buds in the spring for fear of frosts and the like. In short, I have revealed my secret of vine nursery business, for as many to rival me therein as choose. And for the encouragement of others to do this, I name that I have reason to be grateful to a generous public for patronage in my nursery business generally, and vines in particular. Most persons in my vicinity have small vineyards through my means. One near neighbor, for instance, from two Scuppernong vines only, put in the edge of the garden some years since, and thence spreading branches over trees in a grove, has abundance of grape fruit. Another neighbor, from a few vines, made one hundred gallons of wine last season at my presses. I box up vines with damp saw dust or moss, and send them with entire success to all parts of the United States. For instance, by Norfolk and New Orleans, I sent winter before last, a box to Natchez, State of Mississippi, and the gentleman remitting for them wrote to me they did finely; and added, that a bottle or so of my Scuppernong Champaigne wine, as he called it, (sent with the vines,) was pronounced first-rate by good judges of wine there.

I am aware, Mr. Editor, that the foregoing are very desultory observations; but perhaps not the worse on that account, if clearly unfolding the ideas intended. Indeed, I would say to fellow agriculturists, inclined to throw in their mite of experience and information as I do for your useful print, to write just as their thoughts flow, and not be discouraged, because they had not time or perhaps scholarship to make a polished style of it; and if any bad grammar or bad spelling occurs, why you are the very one to make all correct, as far as requisite, by your long thorough experience as an Editor.

* * * * * *

Outline of an American Vineyard from its beginnings.

The following brief outline is the result of much reading on the subject, and some years of observation and experience. If it proves of any service to you in your praiseworthy object of raising the standard of agriculture in our State, and to any readers of the "Farmer," to enable them to speedily have a vineyard to their entire satisfaction, my object is attained in penning it.

1. Reject all kinds of foreign vines as well as all servile imitation of foreign modes of culture and wine making.

2. Thus untrammelled with foreign treatises on vine culture, as that of cutting down to so many joints annually, and keeping the vines humble and the like; you must also reject, in your choice of American or native vines, all not pretty thoroughly tested by experience to be free from the tantalizing propensity (whether young or old,) to rot or the like, as do foreign ones.

3d. Of kinds known to be excellent in most or all respects, take those well rooted, or of some two or three years standing in the nursery, if you wish your vineyard to forthwith begin to bear and go ahead in expanding its branches over scaffolding American fashion.

4. As to soil, site, or the like, (so much dwelt upon in some treatises on vine culture,) I consider them unimportant, if the situation be dry enough and not too rich. More danger as to vines not bearing well from the ground being too rich than too poor. Any kind of soil I find will do, if properly managed. My vineyards all flourish and bear well, though on six acres of diverse description, as from the hard clayey to the very light sandy soil. If land will bring good corn, it will do well for vines.

5. But you must have the site of your intended vineyard in good clean order. Then in the fall or spring excavate with the plow, or otherwise, holes say every twenty feet each way, for Scuppernong, and ten feet for other vines, and plant as you would fruit trees, with a stake north side. a few inches from each vine. If the ground be sufficiently rich, surface earth alone thrown into the hole, say half full of two feet deep, ere planting the vine, will do; otherwise, partly filled with manure, and earth on top of that, to prevent the roots coming in contact with the manure, and consequent danger of vines dying by dry weather the first season.

6. Trim in summer or fall merely to train one or two main stems (without laterals and unchecked as to length,) to the stakes for, say two or three seasons, or till time to put in posts of oak or lightwood every ten feet, to support the rails or scantling for the canopy over which the vines to expand; ever after untrimmed, except as to any straggling lateral branches that might prevent a free passage of air or team; or say all clear beneath, except the posts, for six or eight feet high under the canopies.

7. No part of the year are weeds or grass to appear in your vineyard, if you wish it to flourish and bear well. But especially just before and after hard frosts in the fall, must the ground underneath the canopies be well scarified, that, according to native plan of fertilizing the woods, no leaves or other litter may blow or wash away, but all be incorporated with the soil, as the very best substitute for other manuring. However, instead of thus doing, in some parts of my vineyards, I cover

underneath the canopies with a thick coating of pine straw to prevent all undergrowth.

8. Some small matters, and I have done this off-hand piece, in plain, if not rough style, now longer than at first intended.

1. As to posts, they should be charred or burnt as to part in and a little above the earth, and put into the ground with the little end down or inverted as to the part upwards in the tree, to cause them to last longer; the squared end of the upper part of the post to have a clete or shingle nailed on each side, to keep the scantling fast.

2. As to mode of inserting posts, I do it in a wet time, with what we call a *jobber*, or piece of wood, say three feet long, sharpened at one end and near the other square end, a round stick or piece of iron put through a large auger hole, with which, and by a crowbar or strong stake, the jobber may be raised out of the ground after having been driven in by a maul or beetle. Some jobbers have long handles (or drawn off at one end,) to enlarge the holes, if necessary, ere the posts are inserted.

3. As to inserting other posts, when the first put are giving way, or becoming too short by letting down after the end in the ground rotting off, it may be done at any time by forking up the scaffolding.

4. As to ties for fastening up the vines when young to the stakes, nothing better than strips of elm bark I find. The elm bark may be got in the spring, and at any time in summer; when soaked an hour or two, is fit for use. The strips of this bark will outlast any strings I have ever tried, and are very convenient.

5. For thin strips of wood, to lay on the rails or scantling for supporting the canopy branches of vines, any lasting wood will do; but the cypress or cedar, as light, is best, when conveniently procured. In fact, after the vine branches are well spread, very little support other than the scantling (ten feet apart,) is required.

SIDNEY WELLER.

Brinkleyville, Halifax Co., N. C.

[N. C. Farmer.

From the Cincinnati Gazette.

POTATO ROT.

Messrs. Editors:—I have lately received from the Rev. Dr. Buckland, a printed copy of his "Lecture to the Ashmoleon Society at Oxford," delivered November 3, 1845, "on the origin, extent, and remedies of the prevailing Potato Disease, and the danger of approaching scarcity."

This paper is characterised by the same original vigor which has marked all of the preceding works of the same author. The whole of it is worthy a place in our popular journals; but as the readers of our newspapers look mostly at political and commercial news, and have, some of them, protested against scientific articles, I have prepared the following brief abstract:

Dr. Buckland says the disease and destruction of the Potato has been general over the whole of Europe. He attributes the disease simply to the effects of cold frost and moisture. He uses the following words: "Hot sun blasts, and frosts, and rains during summer, having destroyed the leaves, the tubers (Potatoes) have not been completely formed, and are loaded with a morbid dropsical excess of water which, unless they are kept dry, acts on the imperfect cells and fibres of the Potatoes, and brings on premature decay or wet rot, which destroys them."

Dr. B.'s history of the Potato cannot but be interesting. "The Potato (solanum tuberosum,") he says, "was imported to this country by Harriott, the companion of Raleigh, from Virginia, where its name was OPENAWK. It had before been brought to Spain from Quito, where its name was PAPAS, which the Spaniards converted to Battata. It was first cultivated in Ireland by Sir R. Southwell, and in Sir W. Raleigh's garden, at Youghal, where the gardener, assuming that the seed balls were the object of its cultivation, condemned them as uneatable fruit. A ship wrecked near the mouth of Ribble, first brought them to Lancashire. For more than a century they were grown only in gardens. In 1782, the first field crop was planted in Scotland."

Dr. B. is of opinion, "that the Potato disease is simply what has been stated above, and goes on to say, "there is no foundation for the opinion that degeneracy has taken place, and there is no occasion to get new varieties from fresh seed, in consequence of imperfect ripening which has led to wet rot the present year."

On the nature of the Pototo he remarks: "the juices of the Potato plant and its root are acrid, but being soluble in water, they are dissolved in boiling, their nature also is changed by heat, both in boiling and roasting, so that like arrow root, (which is starch from the root of the acrid and poisonous Arum,) the Potato, though acrid when raw, becomes innocuous and nutricious by the action of heat. Potatoes, therefore, should never be given to hogs or cattle raw." This may be done however, as a means of medicating these animals, acrimony acting as a cathartic to such animals as are not used to such kind of food. Our common arum, (Indian or wild turnips,) although horribly acrid and poisonous when raw, becomes, by boiling or roasting, a rich mealy farina as bland and palatable as the finest dry ripe Potato. An excellent starch can also be prepared from this plant, the Arum tryphyllum of the Botanists. It is also known by the popular name of the Dragon root. Dr. B. then alludes to the Libeigian theory of nutrition which does not place Potatoes very high in the scale of nutricious articles, and adds:

"A laborer at Arbringe, complained to his master, Mr. Symons, that laborers feeding on Potatoes could not do so good a day's work as when he was young, and when they fed on Peas. 'Peas, sir,' said he, 'stick to the ribs.' He uttered the very truths of organic chemistry."

"In Beans we have vegetable 'cuseine,' or the peculiar elements of cheese. What is more restorative or more grateful to man when fatigued by labor, or a long walk? As we heat or toast it, it melts, and ere it reaches our mouth, is drawn into strings of almost ready made muscular fibre; and who has ever dined so fully as not to have room left for a little bit of cheese?"

Dr. H. admits the existence of minute fungi, [Uredo] in the declining Potato, but denies that it is the *cause* of the disease, but is a consequence of it—and adds, "That nature has formed these fungi to quicken the decay of all kinds of vegetables, (after their death.) In suggesting substi-

tutes for the Potato to relieve the approaching scarcity, he observes that "Indian corn or maize is the food of man over a large part of the world, and makes cakes or bread not very palatable to us, but better than nothing in times of scarcity." It seems by this that Dr. Buckland does not understand how to make corn-bread, or what is meant by corn-fed, so well as some of the people of Western America.

Rye-meal, oat-meal, peas and beans seem to be lauded in Dr. Buckland's discourse, and the American productions, maize and Potatoes, are put in a secondary rank; still the destruction of one third of the Potato crop agitates the whole of Europe with fear and famine.

The eulogy on oat cake is peculiarly pointed. "Oat cake is the bread of all Scotland, and of much of Ireland and the north of England; and oat-meal made into broth and porridge is the universal and almost the only food of Highland children. Let those who have quailed under the charge of a Highland regiment tell the result."

If the views of Dr. Buckland are earnest, we are scarcely in danger of the Potato disease in our climate, although it may prevail more or less in Canada and New England, as we are informed it has actually done. Yours,

JOHN LOCKE.

ANECDOTE OF DANIEL WEBSTER.—The Transcript copies from the London Sun, a pleasant sketch of Daniel Webster, which concludes with the following amusing anecdote of this remarkable man:

"The distinguished man, just before Lafayette's last visit to America, formed one in a fishing-party in Massachusetts Bay. He had been selected to deliver the welcoming speech to the Frenchman on his visit, and during his occupation of hauling up cod-fish and tautog, he was observed to be very abstracted. It appeared afterwards that he must have been studying that part of his speech in which he afterwards addressed Lafayette, for a gentleman who was fishing next him observed him pulling in his line, hand over hand, with some difficulty, as if a large fish was hooked, yet without exhibiting any satisfaction on his face at having captured a prize. At length the fish was seen approaching the surface and gleaming through the green waters, like a lively bladder of quicksilver; still Webster's face gave no smiling welcome; but just as the fish came to the surface, he burst out with 'Venerable man! the representative of two hemispheres, welcome to our shores,' and down flopped the 'monster cod' on the deck?"

A DELICIOUS APPLE PUDDING; Very convenient, as it may be made several hours before it is baked, or when a nice addition is wanted unexpectedly. Pare and chop fine, half a dozen or more, according to their size, of the best cooking apples—grease a pudding-dish, cover the bottom and sides half an inch thick with grated bread, and very small lumps of butter: then put a layer of apples with sugar and nutmeg, and repeat the layers until the dish is heaped full. Before adding the last layer, which must be of bread and butter, pour over the whole, a teacupful of cold water. Put it into the oven as soon as dinner is served, and bake it for twenty-five or thirty minutes. It may be baked the day before it is wanted; when it must be heated thoroughly, turned into a shallow dish, and sprinkled with powdered sugar. It requires no sauce.

American Agricult.

LARGE STRAWBERRIES AGAIN. — The Rev. E. Smythe, of Elkington, near Louth, Lincolnshire, informed me that he cut one a short time ago, weighing two and a half ounces, and that at the same time there were two others partially destroyed, which he is quite sure would have weighed as much. This one of two ounces measured nine and a half inches in circumference. It was seen by several gentlemen, there being at that time a cricket-match close by. Mr. Smyth also says, that during the season he thinks he had eight which would have weighed two ounces each. I believe Mr. Smythe adopted the method I have done some time with every kind of strawberry; it is the late Mr. Knight's plan. Runners are taken from an old bed, and planted in the spring; no runners or blossoms are allowed for the first year. The second year of growth is their first and last for bearing fruit. In consequence of the organizable matter stored up in the plants during a full summer's growth, without any abstractions by runner or blossom, a greater quantity of fruit, and superior in quality, will be obtained the first bearing season than during any future season; therefore, my motto is, why not always have the most fruit, and crop strawberries like any other vegetable?—*Gard. Chron.*

CURE FOR QUINSY. —Simmer hops in vinegar a few minutes, until their strength is extracted; strain the liquid, sweeten it with sugar, and give it frequently to the child or patient, in small quantities, until relieved. This is said to be an excellent medicine.

He who gives expression to half-formed ideas, will have frequent cause for regret.

PLASTER. —Sow one bushel per acre of wheat in April.

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